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CICER APPOZAICUM (FABACEAE): A NEW SPECIES FROM ZHOB (BALOCHISTAN, PAKISTAN)

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Abstract

Specimens of a native *Cicer* were collected from different localities in the Zhob district of Pakistan. It is described as a new species, *Cicer appozaicum*. It belongs to section Vicioides in the subgenus Viciastrum and is characterized by small flabellate leaflets, coiled simple tendril, very small triangular spinescent stipules often parted into two spinelets, a minute bract, large lilac flowers, rhomboid fruits, beaked rugose to tuberculate and granulose seeds and presence of glandular pubescence on the entire plant, except corolla. Illustrations and a distribution map of the new species are provided. The key to *Cicer* species in the Flora of Pakistan is amended.

Key words: *Cicer appozaicum,* Description, Zhob, Balochistan, Pakistan.

Introduction

The genus *Cicer* L. comprises 44 species worldwide (Linchevskii, 1948; Townsend, 1966; Mabberley, 2008) with 9 annual and 35 perennial species (van der Maesen *et al*., 2007). The genus includes an important crop plant, chickpea, which is consumed in large quantities in Southeast Asia to India, Pakistan and in the Middle East and Mediterranean countries since prehistoric times. South-western and Central Asia is the centre of diversity of the genus, with remote, endemic species found in Morocco and the Canary Islands (van der Maesen, 1987). The genus was monographed by van der Maesen (1972) and van der Maesen *et al*., (2007) while Davies *et al*., (2007), proposed a natural infrageneric classification for the genus. The genus belongs to the monotypic tribe Cicereae Alef. It was historically included in the legume tribe Vicieae (Bronn) DC., but Kupicha (1977) presented detailed taxonomic evidence to support the tribal distinction of the genus from the other genera in the tribe Vicieae, viz., *Vicia* L., *Pisum* L., *Lens* Adans., *Lathyrus* L. and *Vavilovia* Fed. Kupicha (1977) reinstated the monogeneric tribe Cicereae originally proposed by Alefeld (1859) and provided a detailed generic description (Kupicha, 1981). The genus *Cicer* was first studied in detail by Jaubert & Spach (1842), who described four sections, Arietina, Vicioides, Spiroceras and Tragacanthoides based on woodiness and terminal structure of the leaf rachis (presence of a terminal leaflet, spine or tendril).

The genus was comprehensively revised by van der Maesen (1972), who extended the work of Popov (1929) and Linchevskii (1948). The classification proposed by van der Maesen (1972) contained 2 subgenera, Pseudononis Popov and Viciastrum Popov (distinguished by flower size and calyx morphology) and 4 sections. Davies *et al*., (2007) re-organized the infrageneric classification by using morphometric analyses and available molecular phylogenies, genetic data and revised the classification with 3 subgenera Cicer, Viciastrum and Stenophylloma (based on habit, life cycle, apex of rachis, leaf shape, flower and filament size), 5 sections and 2 series.

During field studies in west Pakistan, an unusual *Cicer* specimen was collected from Nishpa Mountains, Speraghar in the Zhob district of Balochistan which could not be identified when compared with the species described in the Flora of Pakistan (Ali, 1977), the monograph of the genus (van der Maesen, 1972) and Flora Iranica (van der Maesen, 1979). In order to accommodate these unidentified specimens a new species viz. *Cicer appozaicum* Nazar Khan *et al*. is described and illustrated here. Five *Cicer* species were previously reported from Pakistan (Ali, 1977; van der Maesen, 1979) and with the addition of this species, this genus is now represented by 6 species in the country.

Results

Cicer appozaicum Nazar Khan, Amir Sultan & Maesen **sp. nov.**
Figs. 1-9

Type: Pakistan, Balochistan, Zhob district, Nishpa mountain, 31° 40’ 54” N, 69° 14’ 00” E, 2350 m, *Nazar Khan Mandokhel and Kamran Ishaq Bahadikhel,* 26 June, 2020 (RAW 101574, holo).

Fig. 1. *Cicer appozaicum* plant habit (photo by Nazar Khan).

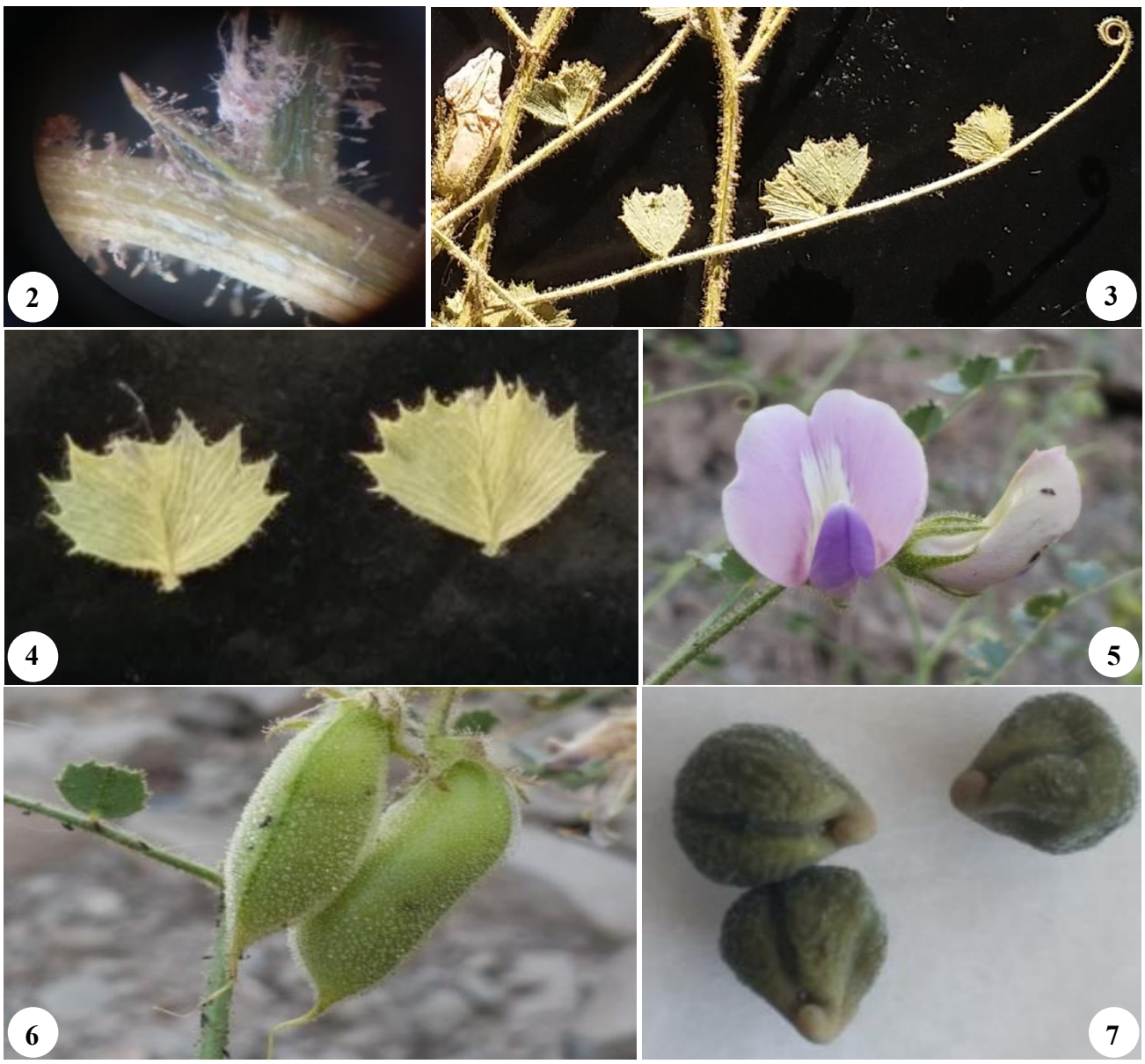

Fig. 2-7. *Cicer appozaicum* Fig. 2: stipule, Fig. 3: leaf, Fig. 4: leaflets, Fig. 5: flower, Fig. 6: pods, Fig. 7: seeds (Photos by Nazar Khan).

Diagnosis: Size and shape of flower and ovary, size of fruits and glandular hairs are similar to *Cicer microphyllum* but differs by the stem which is mostly flexuous, fewer and smaller size of leaflets, flabellate to orbicular leaflet shape, smaller triangular stipules comprising a single tooth or spinelet or often parted into two spinelets, linear to lanceolate calyx lobes, rhomboid fruits, rugose-granulose seed surface and more densely hairy vestituture.

Size and flabellate shape of leaflets and flexuous stem are also similar to *Cicer mogoltavicum,* but *C. mogoltavicum* has more numerous leaflets, slightly smaller corolla, stipules with many teeth, simple to ramified tendrils while *C. appozaicum* has fewer leaflets, larger corolla size, stipules comprising a single or two spinelets and simple tendrils.

Description: Perennial ascending, glandular pubescent, branched herb. Stem flexuous to straight, ribbed, 30-60 cm. Leaves usually paripinnately compound bearing 8-12 leaflets, rachis 6-7.5 cm ending in a coiled simple tendril or leaflet in young plants, glandular pubescent.

Leaflets subopposite, subsessile with petiolule c. 1 mm, remote, cuneate, flabellate to slightly orbicular, 4-5.5 mm long, 5-7 mm wide, base rounded-cuneate to slightly truncate, apex inscised, margins dentate except near the base, teeth 8-12, triangular, acuminate, 0.5-1.2 mm, ending in a spinelet, tooth of midrib, often incurved, both surfaces of leaflets conspicuously veined and sparsely glandular pubescent.

Stipule triangular upto 2 mm, comprising a single acute tooth or spinelet or often parted into two spinelets. Flowers 2, in axillary racemes, peduncle 20-30 mm ending in an arista 5-8 mm long, bract minute upto 2 mm, pedicel 6-7 mm, recurved. Calyx gibbous dorsally at base, tube 1-2.5 mm, teeth 4-7 mm, linear to lanceolate, acuminate, glandular pubescent. Corolla purple to lilac or white, glabrous, veined, vexillum obovate (to ovate to nearly orbicular), emarginate, 17 -20 mm long, 10- 20 mm wide, alae (wings) purple or violet, obovate 12-14 mm long, 4-7 mm wide, carina (keel) rhomboid, 10-12 mm long, 6-10 mm wide.

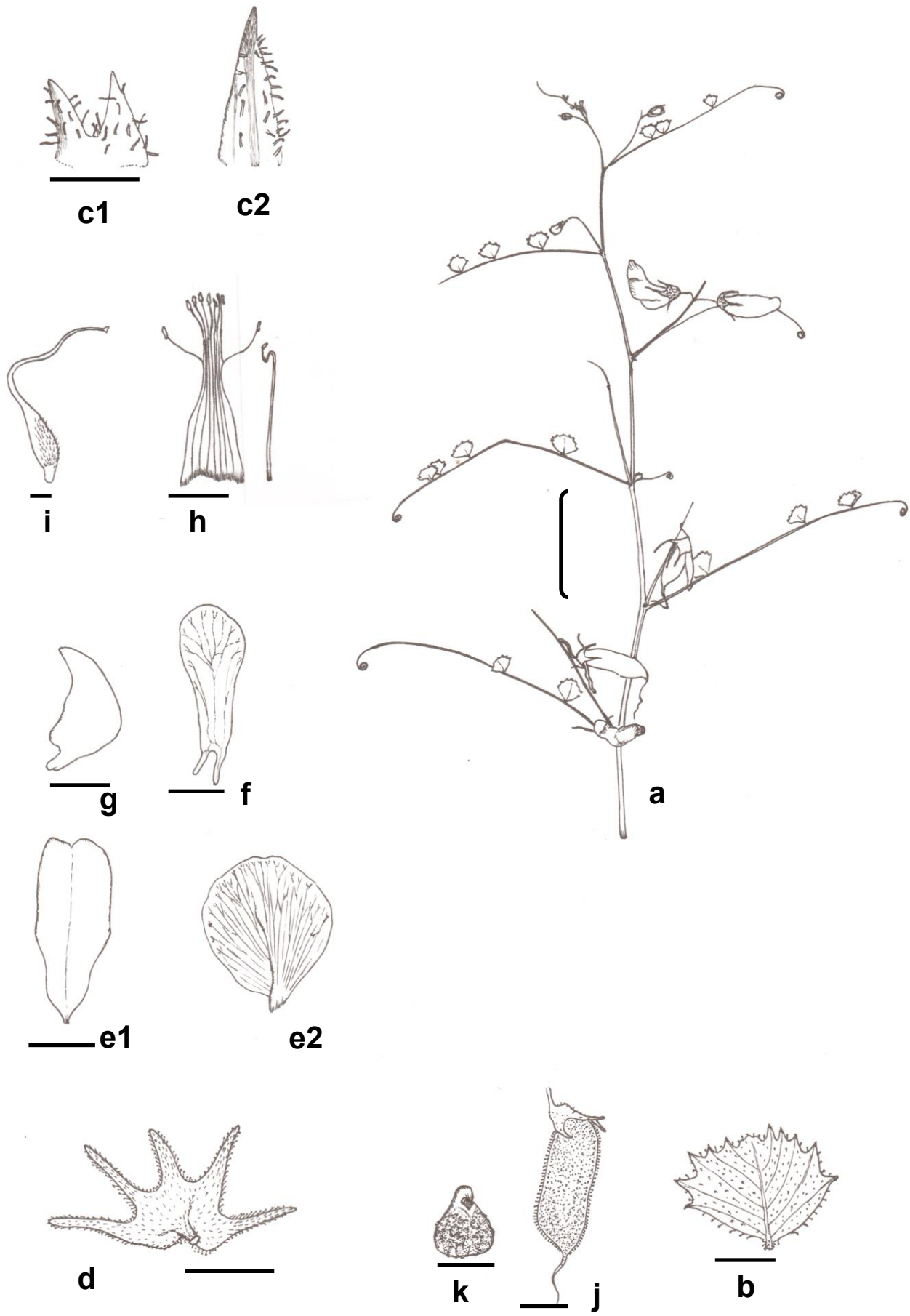

Fig. 8. *Cicer appozaicum* a. Flowering branch (scale bar = 3 cm), b. Leaflet (scale mm), c1 & c2. Stipules (scale bar: c1 = 1 mm), d. Calyx (scale bar = 6 mm), e1 & e2. Vexillum (scale bar: e1 = 7 mm), f. Wing (scale bar = 4 mm), g. Keel (scale bar = 6 mm), h. Anthers (scale bar = 4 mm), i. Pistil (scale bar = 1 mm), j. Fruit (scale bar = 8 mm), k. Seed (scale bar = c. 3 mm).

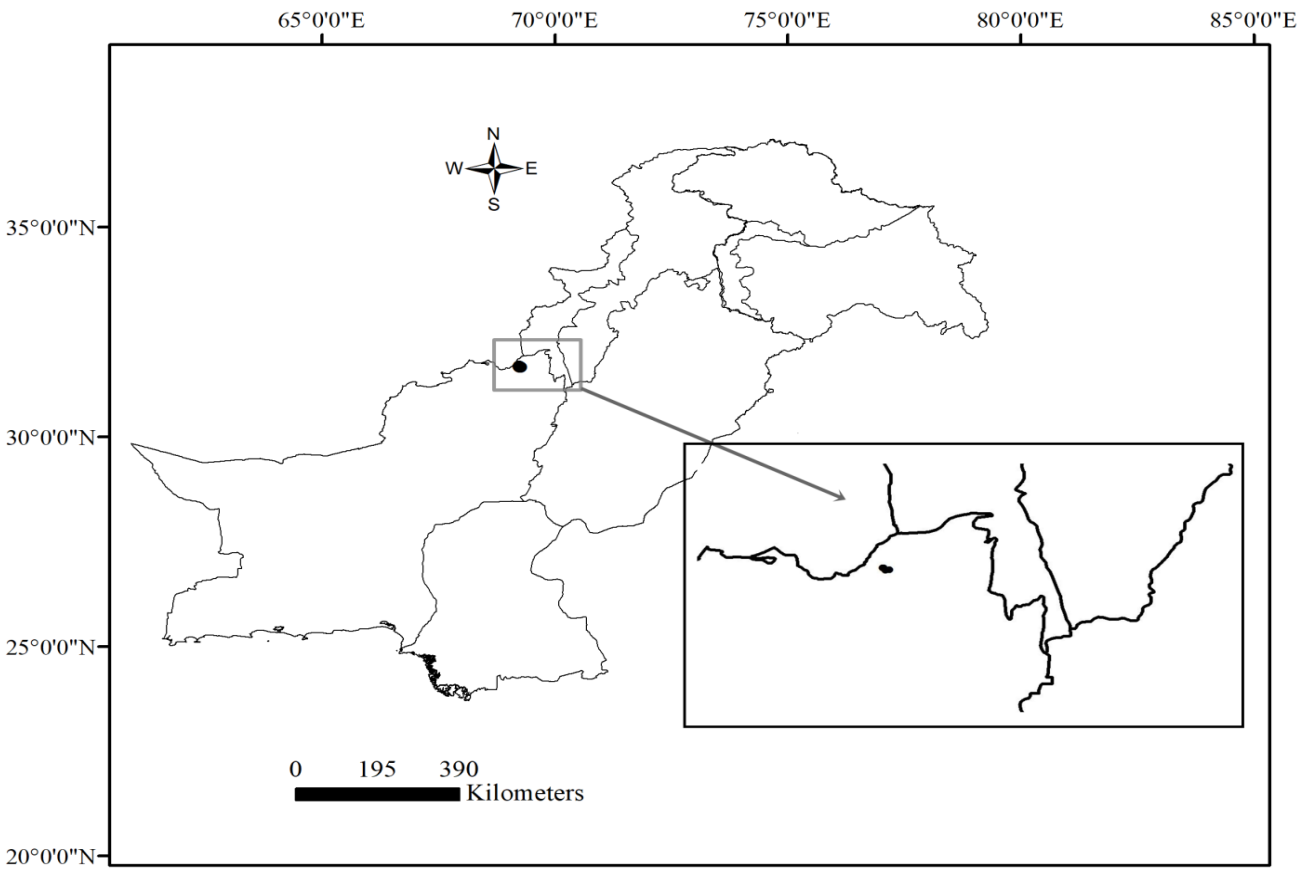

Fig. 9. Distribution of *Cicer appozaicum.*

Stamens persistent, filament 9-12 mm, fused part 6-10 mm, free part of lateral two stamens 4 mm and free part of central stamens 2-3 mm, anthers basifixed, orange, ovary lanceolate-elliptic, 4-5 mm long, 2 mm wide, glandular pubescent, ovules 3, style 9-10 mm, stigma capitate. Pod rhomboid-ovate or elliptic-elongate, 19-21 mm long, 7-8 mm wide, densely pubescent with glandular hairs.

Seeds greenish brown-brown, ovate, rugose-tuberculate and granulose, 3-4 mm long, 3- 3.5 mm wide, beak incurved up to 1mm.

Flowering time: May to June

Vernacular name: Da Dal Botai

Etymology: The species is named after the historic name of Zhob district 'Appozai'.

Distribution: Found in Nishpa Mountain, Speraghar towards north west of Zhob city (Fig. 9). So far no (wild) species of *Cicer* had been found in Balochistan. That province is adjacent to Afghanistan, where *Cicer* is represented by more wild species.

Specimens examined: So for only known from the type locality.

Ecology: Usually found growing among rocks in pine forest from 2000 to 2500 m above sea level, remains vegetative at 2000 m and flowers profusely from 2300 to 2400 m above sea level.

Ethnobotany: The plants are eaten by goats and sheep.

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Amended key to *Cicer* species of Pakistan (based on Ali, 1977)

1	Leaf imparipinnately compound ……..	*Cicer arietinum*
+	Leaf paripinnately compound ……..	(2)
2 (1)	Leaf rachis ending in a tendril ……..	(3)
+	Leaf rachis ending in a spine ……	*Cicer macracanthum*
3 (2)	Stipules spinescent comprising one or two spinelets, leaflets broader than long ……	*Cicer appozaicum*
+	Stipules incised, leaflets generally longer than broad ……..	(4)
4 (3)	Leaflets narrowly cuneate or cuneate-obovate, upper half of margin incised dentate …….	*Cicer microphyllum*
+	Leaflets ovate or ovate-elliptic, margin dentate except near base ……	*Cicer nuristanicum*

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